

AMENDMENTS TO THE CLAIMS

1. (Original) A nitride semiconductor light emitting device comprising:
 - an n-type nitride semiconductor layer;
 - an In-containing super lattice structure layer formed above the n-type nitride semiconductor layer;
 - a first electrode contact layer formed above the super lattice structure layer;
 - a first cluster layer formed above the first electrode contact layer;
 - a first In-containing nitride gallium layer formed above the first cluster layer;
 - a second cluster layer formed above the first In-containing nitride gallium layer;
 - an active layer formed above the second cluster layer;
 - a p-type nitride semiconductor layer formed above the active layer; and
 - a second electrode contact layer formed above the p-type nitride semiconductor layer.
2. (Original) The device according to claim 1, wherein the active layer comprises:
 - a first quantum well layer having an $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer/ $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer structure;
 - a second In-containing nitride gallium layer formed above the first quantum well layer;
 - and
 - a second quantum well layer formed above the second In-containing nitride gallium layer to have an $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer/ $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer structure.
3. (Currently Amended) The device according to claim 1, further comprising a buffer layer formed ~~down~~below the n-type nitride semiconductor layer, and a substrate formed ~~down~~below the buffer layer.
4. (Original) The device according to claim 1, wherein the n-type nitride semiconductor layer is doped with indium (In).

5. (Original) The device according to claim 3, wherein the buffer layer has one selected from an AlInN structure, an AlInN/GaN layered structure, an InGaN/GaN super lattice structure, an $\text{In}_x\text{Ga}_{1-x}\text{N}$ /GaN layered structure, and an $\text{Al}_x\text{In}_y\text{Ga}_{1-x-y}\text{N}/\text{In}_z\text{Ga}_{1-z}\text{N}$ /GaN layered structure.
6. (Original) The device according to claim 1, wherein the first electrode contact layer is a Si-In co-doped nitride gallium layer.
7. (Original) The device according to claim 1, wherein the first cluster layer and/or the second cluster layer are formed to have a thickness of atomic scale.
8. (Original) The device according to claim 1, wherein the cluster layers are formed of SiN_a .
9. (Original) The device according to claim 1, wherein the first In-containing nitride gallium layer has a surface shape grown in a spiral mode.
10. (Original) The device according to claim 1, wherein the first In-containing nitride gallium layer has a surface shape grown and connected up to a surface of the active layer.
11. (Original) The device according to claim 1, wherein the active layer has a single quantum well structure or a multi quantum well structure, which is has an $\text{In}_x\text{Ga}_{1-x}\text{N}$ well layer/ $\text{In}_y\text{Ga}_{1-y}\text{N}$ barrier layer.
12. (Original) The device according to claim 11, wherein the $\text{In}_x\text{Ga}_{1-x}\text{N}$ well layer/ $\text{In}_y\text{Ga}_{1-y}\text{N}$ barrier layer have indium contents of $0 < x < 0.35$ and $0 < y < 0.1$, respectively.
13. (Original) The device according to claim 1, wherein the first In-containing nitride gallium layer is expressed as $\text{In}_x\text{Ga}_{1-x}\text{N}$, and has a value of $1 < x < 0.1$.

14. (Original) The device according to claim 11, further comprising a SiN_a cluster layer formed between the $\text{In}_x\text{Ga}_{1-x}\text{N}$ well layer and the $\text{In}_y\text{Ga}_{1-y}\text{N}$ barrier layer of the active layer to have a thickness of atomic scale.

15. (Original) The device according to claim 1, further comprising a SiN_a cluster layer formed between the active layer and the p-nitride semiconductor layer to have a thickness of atomic scale.

16. (Original) The device according to claim 1, wherein the second electrode contact layer is formed to have one selected from an $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ super lattice structure, an $\text{In}_x\text{Ga}_{1-x}\text{N}$ super grading structure and $(\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ super lattice)/n-GaN layered structure.

17. (Currently Amended) The device according to ~~claim 1~~claim 16, wherein $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ layers of the second electrode contact layer have a thickness of 2-50Å, respectively and alternately.

18. (Original) The device according to claim 14, wherein the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ layers of the second electrode contact layer have a total thickness of less than 200Å.

19. (Original) The device according to claim 1, wherein the second electrode contact layer has a doped silicon.

20. (Original) The device according to claim 1, wherein the n-type nitride semiconductor layer and the In-containing super lattice structure formed above the n-type nitride semiconductor layer is repeatedly formed.

21. (Currently Amended) The device according to ~~claim 1~~claim 16, wherein the In-containing super lattice structure layer formed of $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ is provided at least one.

22. (Original) The device according to claim 1, wherein the p-type nitride semiconductor layer is formed to have a multi-layered structure in which a doped amount of magnesium is sequentially increased.

23. (Original) The device according to claim 2, wherein the second In-containing nitride gallium layer has a chemical formula of $\text{In}_x\text{Ga}_{1-x}\text{N}$ ($0 < x < 0.1$), and has a thickness of 300-2000 Å.

24. (Original) A nitride semiconductor light emitting device comprising:
a first electrode contact layer;
a first cluster layer formed above the first electrode contact layer;
a first In-containing nitride gallium layer formed above the first cluster layer;
a second cluster layer formed above the first In-containing nitride gallium layer;
an active layer formed above the second cluster layer; and
a p-type nitride semiconductor layer formed above the active layer.

25. (Original) The device according to claim 24, wherein the first and/or second cluster layers are/is formed of SiN_a .

26. (Original) The device according to claim 24, wherein the active layer comprises:
a first quantum well layer having an $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer/ $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer structure;
a second In-containing nitride gallium layer formed above the first quantum well layer;
and
a second quantum well layer formed above the second In-containing nitride gallium layer to have a structure of at least one of $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer/ $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer.

27. (Original) The device according to claim 24, further comprising a second electrode contact layer formed above the p-type nitride semiconductor layer.

28. (Original) The device according to claim 27, wherein the second electrode contact layer has an In-containing super lattice structure.

29. (Original) The device according to claim 24, further comprising a Si-doped In-containing super lattice structure formed above the p-type nitride semiconductor layer.

30. (Original) The device according to claim 24, wherein the first electrode contact layer comprises:

- an In-doped GaN layer;
- an $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ super lattice structure layer formed above the In-doped GaN layer; and
- a Si-In co-doped GaN layer formed above the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ super lattice structure layer.

31. (Original) The device according to claim 24, wherein the active layer has a single quantum well structure or a multi quantum well structure, which has $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer/ $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer.

32. (Original) The device according to claim 24, wherein the active layer is comprised of the $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer and the $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer, and a SiN_a cluster layer interposed therebetween.

33. (Original) The device according to claim 24, further comprising a SiN_a cluster layer formed between the active layer and the p-nitride semiconductor layer.

34. (Original) A nitride semiconductor light emitting device comprising:
an n-type first electrode contact layer;
a first SiN_a cluster layer formed above the first electrode contact layer;

- a first In-containing nitride gallium layer formed above the first SiN_a cluster layer;
- a second SiN_a cluster layer formed above the first In-containing nitride gallium layer;
- an active layer formed above the second SiN_a cluster layer, for emitting light;
- a p-type nitride gallium layer formed above the active layer; and
- an n-type second electrode contact layer formed above the p-type nitride gallium layer.

35. (Original) A nitride semiconductor light emitting device comprising:

- an n-type first electrode contact layer;
- a strain control layer formed over the first electrode contact layer;
- an active layer formed over the strain control layer, for emitting light, to have an $\text{In}_y\text{Ga}_{1-y}\text{N}$ well layer, a SiN_a cluster layer having a thickness of atomic scale, and an $\text{In}_z\text{Ga}_{1-z}\text{N}$ barrier layer;
- a p-type nitride gallium layer formed above the active layer; and
- an n-type second electrode contact layer formed above the p-type nitride gallium layer.

36. (Original) A nitride semiconductor light emitting device comprising:

- an n-type first electrode contact layer;
- a strain control layer formed over the first electrode contact layer;
- an active layer formed above the strain control layer;
- a SiN_a cluster layer formed above the active layer;
- a p-type nitride semiconductor layer formed above the SiN_a cluster layer; and
- an n-type second electrode contact layer formed above the p-type nitride semiconductor layer.

37. (Original) A nitride semiconductor light emitting device comprising:

- an n-type first electrode contact layer;
- a strain control layer formed above the first electrode contact layer;

an active layer formed above the strain control layer to have a first quantum well layer, a second quantum well layer, and an $\text{In}_x\text{Ga}_{1-x}\text{N}$ layer interposed between the first quantum well layer and the second quantum well layer;

a p-type nitride semiconductor layer formed above the active layer; and

an n-type second electrode contact layer formed above the p-type nitride semiconductor layer.

38. (Original) A nitride semiconductor light emitting device comprising:

an n-type first electrode contact layer;

an active layer formed above the first electrode contact layer, for emitting light;

a p-type nitride semiconductor layer formed above the active layer; and

an n-type second electrode contact layer formed above the p-type nitride semiconductor layer to have an $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ super lattice structure.